

## **REMARKS**

### **FORMAL MATTERS:**

Claims 1-3, 6, 8 and 9 are now pending in this application.

Claims 1, 2, 3, 6 and 9 have been amended to more particularly point out and distinctly claim the invention.

Claims 4, 5, 7 and 10-31 have been canceled.

The amendments to claim 1 are fully supported within the originally filed application such as within original claim 9.

Claim 2 has been amended to specifically refer to the SEQ ID NO of the protein whose expression would be disrupted and thereby more particularly point out and distinctly claim the invention.

The amendment to claim 3 does not add new matter in that it merely deletes a qualifying term with respect to algae.

Claim 6 has been amended in view of the amendments made to claim 1 so that claim 6 is now placed in independent form. The amendments to claim 6 are believed to be fully supported within originally filed claims 1 and 6.

Claim 9 has been amended in view of the cancellation of claim 7 and further in view of the amendments made to claim 1 so that they language properly corresponds to its dependency on claim 8 which is dependent on claim 2 which is dependent on claim 1.

No new matter has been added.

### **ELECTION/RESTRICTION:**

Without acquiescing to the Restriction Requirement applicants point out that the non-elected claims have been canceled. New claim 32 is directed to the elected Group I which included claims 1-9. Further, the elected sequence of SEQ ID NO:2 is included within newly added claim 32.

### **DRAWINGS**

Applicants appreciate the Examiner's acceptance of the drawings for purposes of examination. New drawings are attached which are believed to be in final form.

**SPECIFICATION:**

Applicants have amended the specification to refer to the pending parent application. Currently applicants are not filing a response to the parent application and after further consideration may choose to allow the parent application to lapse in favor of the present application.

**SEQUENCE COMPLIANCE:**

Applicants have attached new Figures which include references to the SEQ ID NOS. and are believed to have overcome the objections raised.

**CLAIM OBJECTIONS:**

The objections to claims 7-8 have been rendered moot or are overcome by cancellation of claim 7 and the amendments made to claim 1 wherein the chloroplast sulfate permease gene is referred to followed by the abbreviation as proposed by the Examiner.

**35 U.S.C. §101 REJECTION:**

The Examiner will note that in view of the amendments made to claim 1 there is no claim pending within the present application which is claiming the same invention as claimed within the related application 10/350,298. Accordingly, the rejection is believed to have been overcome.

**REJECTIONS UNDER 35 U.S.C. §112:**

Claims 1 and 2-9 were rejected under 35 U.S.C. §112, second paragraph. In support of the rejection it was argued that the metes and bounds of the claim were not clear absent a valuation of the reduction in the amount of expression relative to the wild-type algae.

The rejection is traversed as applied and as it might be applied to the presently pending claims.

Applicants will note that amended claim 1 indicates that the genetically modified algae has reduced expression of the chloroplast sulfate permease gene relative to the unmodified wild-type algae. Accordingly, the term "normal" objected to by the Examiner has been eliminated. Those skilled in the art will understand that by reducing expression in some measurable degree relative to the unmodified form of the organism improved results are obtained.

Claims 4 and 8 were rejected under 35 U.S.C. §112, second paragraph. The objection is traversed as applied and as it might be applied to the presently pending claims.

The objection is rendered moot with respect to claim 4. With respect to claim 8 applicants point out that the term “chosen from” is widely accepted in patent claims and appears in the claims of tens of thousands of issued U.S. patents and is also used in sections of the MPEP. If for any reason the Examiner continues the objection applicants will be amenable to considering alternate language.

Claims 4 and 5 were rejected under 35 U.S.C. §112, second paragraph as being indefinite. The rejection is rendered moot by the cancellation of claims 4 and 5.

### **35 U.S.C. §112, FIRST PARAGRAPH REJECTIONS**

Claims 1, 2-3 and 6-9 were rejected under 35 U.S.C. §112, first paragraph. The rejection is traversed as applied and as it might be applied against the presently pending claims. The rejection appeared focused on two issues. The first was with respect to naming certain microorganisms not considered to be algae which were recited within the original claims 4 and 5. In that these claims have been canceled these issues have been rendered moot.

The second issue appeared to relate to the scope of the claims relative to the scope of the disclosure. The previous claims did not specifically indicate that the algae were genetically modified to disrupt the expression of the chloroplast sulfate permease gene comprising SEQ ID NO:2. Applicants have clearly shown enablement with respect to this focused invention. As such the rejection is believed to have been overcome.

### **REJECTION UNDER 35 U.S.C. §103:**

Claims 1-8 were rejected under 35 U.S.C. §103 as unpatentable over Miura et al., Allen et al., and Ghirardi et al. The rejection is traversed as applied and as it might be applied to the newly added claim.

Applicants point out that the rejection was not applied with respect to claim 9 which included the reference to the antisense sequence hybridizing to a portion of SEQ ID NO:2. Amended claim 1 includes this limitation. Accordingly, the rejection is believed to have been overcome.

Claim 9 was rejected under 35 U.S.C. §103 over a combination of Muira et al., Allen et al., Ghirardi et al. and further in view of Laudenbach et al. The rejection is traversed as applied and as it might be applied to the presently pending claims.

The rejection is believed to have been overcome in view of the claim amendments. Specifically, nothing within the cited references suggests genetically modifying algae in order to disrupt expression of

the chloroplast sulfate permease gene *CrcpSulP* comprising SEQ ID NO:2. The art does not teach that by culturing such a genetically modified algae in a container sealed from atmospheric oxygen it is possible to obtain an enhanced hydrogen gas production. In view of such reconsideration and withdrawal of the rejections are respectfully requested.

### **CONCLUSION**

The non-elected claims have been canceled in response to the Restriction Requirement. The specification has been amended to update the status of the parent. A Sequence Listing in compliance with 37 C.F.R. has been filed. The full term for the gene which was abbreviated has been included within the claims. The 35 U.S.C. §101 rejection has been overcome by the claim amendments. The 35 U.S.C. §112, second paragraph rejections have been overcome in view of the cancellation of claims and claim amendments. The 35 U.S.C. §112, first paragraph rejection has been responded to in part by claim amendments and pointing out support for the specifically claimed invention. The 35 U.S.C. §103 rejections are overcome by the claim amendments and by pointing out that the invention now claimed is not taught within the cited references as taken alone or in combination with each other.

Applicant submits that all of the claims are in condition for allowance, which action is requested. If the Examiner finds that a telephone conference would expedite the prosecution of this application, please telephone the undersigned at the number provided.


The Commissioner is hereby authorized to charge any underpayment of fees associated with this communication, including any necessary fees for extensions of time, or credit any overpayment to Deposit Account No. 50-0815, order number BERK-016CIP.

Respectfully submitted,  
BOZICEVIC, FIELD & FRANCIS LLP

Date:

6/July/06

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**AMENDMENTS TO THE DRAWINGS:**

Please replace the drawings with the attached set of formal drawings.

Figures 3, 4A, 4B, 5 and 8A have been amended to include the proper SEQ ID NOS.